

REMARKS

Claims 1-20 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Leibowitz et al. (US 4,500,173) in view of Weber et al. (US 5,686,979). The examiner is requested to reconsider this rejection.

Embodiments of the present invention provide a display device comprising a first electrode; a liquid crystal layer positioned under and connected to the first electrode; a second electrode; a switchable optical layer, having a transparent state and a non-transparent state and being electrically switchable between the transparent state and the non-transparent state, positioned above and connected to the second electrode; and a third electrode positioned between the liquid crystal layer and the switchable optical layer.

In a first embodiment, the non-transparent state of the switchable optical layer is a reflective state. In a second embodiment the non-transparent state of the switchable optical layer is a selectively emissive state.

Liebowitz et al. discloses in Fig.4, a display device 10c and a liquid crystal layer 16 sandwiched between an upper electrode and a common electrode 24 and an electroluminescent (EL) layer 26 sandwiched between the common electrode 24 and bottom electrode 28.

In Liebowitz, the EL layer 26 is the only layer that could be the 'switchable optical layer'. The EL layer is either OFF (transparent) or ON (emissive). Liebowitz does not disclose a

switchable optical layer with a non-transparent state that is either reflective or selectively emissive.

The examiner stated that "20" is a liquid crystal layer. This is incorrect. "16" is the liquid crystal layer. The examiner stated that layer 26 is reflective in a non-transparent state. However, Leibowitz discloses that layer 28 is reflective when the EL panel is not energized, and that the phosphor in the layer 26 provides light when the EL panel is energized. See also the description on column 6, lines 9-43 regarding thickness and reduction of amount of phosphor in the layer 26. There is no disclosure or suggestion of the layer 26 being reflective when the EL panel is energized; it is merely phosphorescent. When the EL panel is not energized, the layer 26 is merely described as a light diffuser (see column 6, lines 44-47); not a reflector.

Weber et al. discloses a pixellated LCD display (Fig.9) comprising a liquid crystal 142, a switchable translector 136 and a backlight 132. If the Examiner interprets the "switchable translector" 136 (col.9, line 26) to be the 'switchable optical layer' then, there is no disclosure of the switchable optical layer being positioned above and connected to a second electrode as there is no underlying electrode that is separate to the switchable translector 136. There is no disclosure that the switchable translector 136 is selectively emissive.

If the Examiner interprets the switchable optical layer as the "liquid crystal device" 146 (col.12, line 15), then there is no disclosure of the switchable optical layer being positioned

above and connected to a second electrode as there is no underlying electrode that is separate to the liquid crystal device 146. Also, according to this interpretation the reflective polarizer 148 is not part of the 'switchable optical layer' so there is no disclosure of a switchable optical layer that has a reflective state or selectively emissive state.

If the Examiner interprets the liquid crystal material 154 as "the switchable optical layer" (col.12, line 10), then there is a disclosure of the switchable optical layer being positioned above and connected to a second electrode 158. However, this interpretation does not provide the switchable optical layer with a transparent and non-transparent state or a non-transparent state that is reflective or selectively emissive.

In the light of the foregoing, it should be apparent that the present invention as defined by the independent claims is, therefore, not disclosed or suggested in the cited documents and is novel.

As both documents do not disclose or suggest a switchable optical layer that is positioned above and connected to a second electrode and that has a transparent and non-transparent state, where the non-transparent state is a reflective state or a selectively emissive state, it is not possible to combine the documents to arrive at the present invention. Thus, even if the teachings of the cited references could be combined, they still do not disclose or suggest applicant's claimed invention.

Independent claim 1 claims a switchable optical layer, having in use either a transparent state or a non transparent state and being electrically switchable between the transparent state and the non transparent state, wherein the non transparent state is a reflective state or a selectively emissive state and the switchable optical layer is positioned above and connected to the second electrode. These features are not disclosed or suggested in the cited art.

Though dependent claims 2-20 contain their own allowable subject matter, these claims should at least be allowable due to their dependence from allowable claim 1. However, to expedite prosecution at this time, no further comment will be made.

Claim 23 claims a switchable optical layer, having in use either a transparent state or a non transparent state and being electrically switchable between the transparent state and the non transparent state, wherein the non transparent state is a reflective state and the switchable optical layer is positioned above and connected to the second electrode. These features are not disclosed or suggested in the cited art.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issue remain, the examiner is invited to call applicant's attorney at the telephone number indicated below.

Appl. No.: 10/606,131
Reply to Office Action of: 12/01/2004

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2/28/05
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